DOCUMENT RESUME

ED 087 897 CE 000 988

| | |
|---|---|
| AUTHOR | Robertson, J. Marvin |
| TITLE | Facilities Evaluation in Vocational and Technical Education. |
| INSTITUTION | Ohio State Univ., Columbus. Center for Vocational and Technical Education. |
| SPONS AGENCY | National Inst. of Education (DHEW), Washington, D.C. |
| REPORT NO | IS-100 |
| PUB DATE | 73 |
| NOTE | 27p. |
| AVAILABLE FROM | Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 |
| EDRS PRICE | MF-$0.75 HC-$1.85 |
| DESCRIPTORS | *Educational Facilities; *Evaluation; Facility Guidelines; Facility Improvement; Facility Requirements; Literature Reviews; *Technical Education; *Vocational Education |

ABSTRACT

In the first section of this review the author describes the purpose of vocational education facilities, gives his own definition of the term, and discusses assumptions and guidelines for the evaluation of such a facility. The second section outlines the roles and responsibilities of those who should be involved in evaluation of facilities. The determination of educational needs as part of evaluation for facilities and evaluation of facilities form the third and fourth sections. Legal and safety considerations (with special reference to accessibility to the handicapped and disadvantaged), extending the facility, sources of assistance, and a summary make up the remainder of the document. A 33-item biblicgraphy is included. (For comparison documents covering evaluation of Programs, Personnel, and Students in Vocational and Technical Education, see CE 000 990, CE 001 133, and CE 001 153 respectively.) (KP)

ED 087897

Information
Series No. 100

# FACILITIES EVALUATION

## IN

## VOCATIONAL AND TECHNICAL EDUCATION

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# FACILITIES EVALUATION

## IN

## VOCATIONAL AND TECHNICAL EDUCATION

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The material in this publication was prepared pursuant to a contract with the National Institute of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgment in professional and technical matters. Prior to publication, the manuscript was submitted to the American Vocational Association for critical review and determination of professional competence. This publication has met such standards. Points of view or opinions, however, do not necessarily represent the official view or opinions of either the American Vocational Association or the National Institute of Education.

# FOREWORD

Vocational and technical education has enjoyed high visibility during the past few years and with it increased pressure to account for expenditures and justify programs. As a result, educators are ever alert for effective means of evaluating their educational programs. This publication and its three companion documents (Program Evaluation in Vocational and Technical Education, Personnel Evaluation in Vocational and Technical Education, and Student Evaluation in Vocational and Technical Education) provide educational practitioners with a review and synthesis of the most important works in evaluation as it applies to vocational and technical education.

In Facilities Evaluation in Vocational and Technical Education, the author looks at the roles of the key players in facility evaluation. Evaluation for facilities is addressed as is evaluation of occupational facilities. Legal and safety considerations are pointed out and a list of facility consultants and/or specialists is provided.

The profession is indebted to J. Marvin Robertson for his scholarship in the preparation of this report. Recognition is also due Gordon Law, Department of Urban Education, Rutgers--the State University; and Donald L. Rathbun, Associate Director, American Vocational Association for their critical review of the manuscript prior to final revision and publication. Paul E. Schroeder coordinated the publication's development, and Alice J. Brown and Paula Kurth provided the technical editing.

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## INTRODUCTION

The purpose of this publication is to present information relative to the state-of-the-art in evaluation of facilities for vocational and technical education programs. Selected reviews of material relevant to facility evaluation are included. A search of the literature revealed limited information and research under the specific heading of "evaluation of vocational-technical facilities." Much of the literature cited, relates to original planning of facilities or to evaluation of educational facilities in general. It is the author's position that these are relevant and adaptable for the purpose of evaluating vocational-technical facilities.

The first section of the paper describes the purpose of facilities, defines facility as used by the author and sets forth the assumptions and guidelines. The second section suggests who should be involved in a facility evaluation and discusses evaluation for facilities and evaluation of facilities. The final sections cover legal and safety considerations, extending the facility, and a summary.

The intended audience is the local vocational educator who finds himself responsible for planning or conducting a local evaluation. It should be useful to teacher educators, state department personnel, and researchers who need a source document. The experienced evaluator will find the paper a point of departure into the complex question of facility evaluation.

## WHY EVALUATE FACILITIES?

### More Than Bricks

> Of all the activities in which the American people engage as they live and work together in their local communities, countries, and states, perhaps none expresses in material form, so many aspects

> of our culture as school-building construction.... With a look toward the future, the school building reflects the ambitions, the hopes, the aspirations, and the dreams of a people that is striving to move forward and upward to a way of life that is better, fuller, richer, and more rewarding than that which it now knows (American Association of School Administrators, 1960).

The school building stands as a material commitment to education. The inclusion of funding for area vocational facility construction and equipment in the federal Vocational Acts of 1963 may have been perceived by vocational educators as a long term future commitment to occupational education by the U.S. Congress. Educators tend to believe that once money is invested to house a program, money to operate the facility will continue.

The enthusiasm for ideal educational facilities is disciplined through competition.

> Planned, financed, and constructed in the midst of the tensions and pressures of community life, the school building is tempered by the disciplinary forces of competition. Competition for the public tax dollar is by no means the least of these disciplinary forces. From the time the school building is conceived as a needed educational facility until the time it is completed and opens its doors to a throng of eager and expectant children, it competes for the tax dollar with the highways sorely needed to handle an ever-increasing amount of traffic, with the waste-disposal system necessary for a rapidly growing population, with community parks and playgrounds essential for recreation and healthful living, with the city hall or county courthouse that must be remodeled or enlarged to enable civil government to function properly, and with the construction of the new hospital that has already been delayed too long. Seemingly, there is never enough money to do all that needs to be done (American Association of School Administrators, 1960).

The vocational educator is aware that occupational programs must compete for the same educational dollar as other

educational programs and that many vocational programs require more space, more expensive equipment, and may serve fewer students per unit. Therefore, evaluation of the need for and utilization of facilities for occupational education is essential.

Evaluation of facilities and planning facilities are two closely related concepts. One might evaluate present facilities as a first step in planning future facilities or to determine the need for remodeling or construction. Literature on planning can serve the needs of the administrator responsible for evaluation even though no new construction is planned.

## Definition and Scope

Facilities, as an educational environment, are more than buildings. In this publication, the term "facilities" includes the building, equipment, the school site, and specialized items such as land laboratories and on-the-job training sites.

Evaluation of facilities can be divided into two major categories--evaluation for facilities and evaluation of facilities. Evaluation for facilities includes defining and stating the kind and extent of the educational program to be offered and the development of long range plans to house the program. In vocational education evaluating for might include manpower surveys, follow-up studies, and review of needs by an advisory council.

Evaluation of school facilities involves the congruence of a particular building, site, and equipment and the educational program which is operated in the facility. Evaluation of, for example, would compare the existing facility with the needs of the occupational program being operated. Instructional needs, safety, and aesthetics might be considered.

## Assumptions

Meckley, et al., (1969) made important assumptions for a facility planning guide that are applicable to evaluation of facilities:

1) Major educational program decisions have or are being made including the content and method of instruction.

2) A cooperative relationship has been established with local agencies who are aware of economic, political, and social conditions that must be taken into account.

3) Educational, economic, political, and social planning has revealed the approximate numbers and kinds of students to be served.

4) Information is recorded for or has been translated into educational specifications.

5) Sufficient funds are or can be available to support both facilities for and operation of the desired occupational programs.

Guiding Principles

Meckley, et al., (1969) also suggest guiding principles for planning facilities that are applicable to evaluation of facilities for occupational programs:

1) The educational program is the basis for planning space and facilities.

2) Space and facilities should be planned to accommodate changes in the educational program.

3) The program should be planned to serve the needs of a variety of groups in the community.

4) Space and facilities for the program can be extended through the use of community resources.

5) Safe and healthful housing must be provided for all students.

6) Space and facilities for occupational preparation programs should be considered in context with the total educational program of the institution and the community.

## WHO IS INVOLVED?

The legal responsibility for the total education program including the evaluation of facilities, rests with the local board of education. The local board and the superintendent may well be able to develop an educational program that will meet the needs of the community simply because they know the community so well. It is possible for them to evaluate facilities with the assistance of technical consultants and sell the resultant program to the community through public meetings and informational and publicity services. Many school districts have pursued such a policy successfully. However, many educators have successfully involved all who are affected by the program in the evaluation of that program.

### Community Participation

· Public education is a community endeavor and the educational facilities should emphasize and reflect the thinking of the community. Some reasons for including the community in planning that apply to evaluation are:

1) The best school program is that which best meets the needs of the local community. As many people as possible should take part in stating those needs and determining ways in which they should be met.

2) It is important that as many citizens of the community as possible understand the purposes and objectives of the school program so that they can also understand how any proposed construction may help achieve those aims and purposes. If the building program comes out of wide community participation it is more likely that these two objectives will be accomplished.

3) Most building programs involve a bond campaign, and the public relations and publicity incidental to the bond campaigns are much more likely to be successful if a large number of people have been involved in developing each program.

4) Many communities have grown so large that it is difficult for the board of education to be truly representative of the many interests within that community. The use of a planning committee thus extends the representative functions of the board of education (Michigan Department of Education, 1970).

## Roles in Evaluation

Several authors suggest a team approach to planning that is also applicable to evaluating facilities (Leu, 1965; Boles, 1965; National Council on Schoolhouse Construction, 1964; Strevell and Burke, 1959). Recommended participants include: the board of education, the superintendent and his staff, the building principal, teachers, pupils, custodians, lay citizens, specialists in specific areas of instruction, educational consultants specializing in facility design, architect or technical consultants, state department personnel, and city and regional planners. The extent to which an evaluation team would include representation from the above depends on the size of the district and the purposes of the facility evaluation.

Superintendent. The superintendent is the community leader in school affairs. His role requires him to coordinate evaluation of facilities, delegate tasks to his staff, advise the board, and be a source of encouragement to his co-workers. Even though he may delegate the specific responsibility of conducting an evaluation to the vocational director or other administrators, the superintendent sets the climate and makes key decisions.

Teaching Staff. The determination of means for carrying out the educational objectives of a community is a professional concern. The teaching staff has competencies in teaching methods, subject matter, the instructional environment, learning processes and the relation of each to the facilities. This is expecially true of occupational programs where both content and facilities are specialized. Few administrators or school boards would consider an evaluation of facilities valid without considerable input from the teaching staff.

Lay Citizens. The present trend is to tie in all community interests with a citizens advisory council.. The

advisory council is a means of discovering unmet needs and defining public sentiment as to the demand for services (Strevell and Burke, 1959).

Byram and Robertson (1971) propose five purposes for a citizens' committee for vocational program evaluation. One of those purposes is "To assist, where appropriate, in appraisal of facilities and equipment for vocational education."

Suggested criteria for membership on a citizens committee include:

1) Interest in the school and its program--which may be demonstrated by assistance on a cooperative occupational education program and/or by helping with field trips.

2) Willingness to serve, and with time to give to committee activities.

3) Confidence on the part of citizens in the person's judgment--which is not always possible to determine in a suburban fringe area, or in a community with a rapidly changing power structure.

4) Ability to communicate information and ideas to the community and to the committee.

5) Knowledge of a field of work and/or work experience in the community.

6) Knowledge of employer requirements and needs for employees, particularly beginning workers--including persons currently working with beginning workers.

7) Knowledge of the needs, interests, and aspirations of students (Byram and Robertson, 1971).

State Department Personnel. More assistance in facility evaluation is generally available from state personnel in occupational education than is generally true in some other content areas. State guides for buildings and equipment are available in most states from vocational education divisions.

The key reasons for involving the state department of education include: (1) They are a major funding source for construction and equipment, (2) they approve the "standard" vocational program, and (3) specialists in most vocational areas are available.

Specialized Consultants. Consultants with specific expertise in school facilities; architects; and technical experts in safety, fire hazards, lighting, and construction are available and should be called upon in a comprehensive evaluation of facilities for occupational educators.

## EVALUATION FOR FACILITIES

The evaluation of occupational facilities should include a determination of present and future needs, if the facilities are to be congruent with the educational needs. Thus the first step should be the determination of educational needs. Typical phases of a school plant needs study are proposed by Leu (1965).

1) Identify the problem.

2) Outline and delimit the scope of the study.

3) Organize the human resources to be utilized.

4) Gather facts and information.

5) Analyze and evaluate data.

6) Develop tentative recommendations.

7) Refine, coordinate, and modify the tentative recommendations in cooperation with other community planning agencies.

8) Report the findings and recommendations.

9) Take action on the survey recommendations.

10) Review and revise the recommendations periodically.

Methods of conducting school plant surveys are described by Boles (1965); Strevell and Burke (1959); and Leu (1965). Examples of surveys for post-secondary programs include McGuffey's (1965a) enrollment study for the Lively Area Vocational Technical Center in Florida. McGuffey's (1965b) study of the Gainesville, Georgia school facilities is an example of a grade one to 12 systemwide survey conducted by a specialized consultant.

## Surveying Needs for Occupational Programs

Planning for occupational programs adds the need for manpower information to the usual pupil potential population data. If this has not been accomplished at the time of the school facilities survey, a survey and plan for occupational programs should be realized first. The reader will find the following references helpful: Planning for Shops and Laboratories (North Carolina..., 1967), Manual for School Administrators on School Plant Planning (Tennessee..., 1964), and Preliminary Guide for Planning a Secondary School Building Program (Texas Education Agency, 1969).

## Space Utilization

Knowledge about the utilization of present space is essential to determining future needs. It is also a means of evaluating the effectiveness of present facilities. The basic functions of space utilization studies are to determine how much space is being used and how well it is being used.

Russell and Doi (1957) have developed a manual useful for post-secondary space utilization studies. Janevich (1962) identifies the factors that may cause low use of facilities as:

1) Uneven distribution of classes by days and hours,

2) Length of the week,

3) The school year,

4) Division of curriculum units,

5) Class occupancy equivalent to credits,

6) Laboratory space,

7) Inflexible classrooms (i.e., rigidity, too large in size),

8) Proliferation of courses,

9) Proprietory attitudes of certain departments, and

10) Self-pride which demands "new buildings."

Space utilization is a special problem for vocational programs that may require large specialized shops and expensive equipment for quality instruction. Teachers are also specialized and enrollments may be low for advanced sections.

## Financial Resources

The study for occupational facilities should include an assessment of sources of funds to build and equip needed housing for programs. Federal and state funds are sometimes more available for occupational programs than for some other programs. These funds may be added to local funds to include occupational facility needs in a total building program.

Sharing of facilities with adjacent systems or forming multiple districts for area vocational programs may be explored (Russo, 1966).

## Summary

The fundamental concern in evaluating for occupational facilities is to insure that the educational needs of the community dictate the nature of the facilities. Additional concerns include planning enough flexibility to permit modifications over time. A community manpower survey, community participation in evaluation, use of technical consultants, and a continuing long range plan can help assure that occupational facilities are adequate to meet the needs of target populations.

## EVALUATION OF OCCUPATIONAL FACILITIES

Lay advisory committees have been used to evaluate existing facilities with the assistance of school personnel, consultants, and technical advice. Basically the evaluation should answer the following questions (Michigan Department of Education, 1970).

1) Is the school safe?

   a) Is it safe from fire and the panic arising from fire? Are exits adequate? Can occupants be trapped?

   b) Is it safe from traffic hazards? From conditions in the building or on the playground which might result in injury?

   c) Is it removed from busy highways or railroads?

   d) Is the playground located and planned so that children cannot be hurt while leaving or entering?

   e) Is the building safe from a health standpoint? Is it clean and sanitary and capable of being kept so?

   f) Is it well lighted, well heated and well ventilated, and does it have suitable modern plumbing?

   g) Are toilet facilities and drinking fountains conveniently located?

2) Does the school plant provide adequate facilities for the education program desired?

   a) Are the classrooms large enough to allow the teacher to conduct many kinds of activities in them?

   b) Are the classrooms and special rooms well located so that the noisy rooms are in one

part of the building where the noises don't disturb other classes? Can children move easily and without confusion from one room to another?

c) Have the rooms been planned so that they can be changed or so that additions can be made to the building that would be logical and in keeping with the architecture of the building?

d) Are special rooms provided as needed for the desired program?

e) Is the school site large enough to accommodate the activities desired?

3) Is the school plant accessible?

a) Is the building located so that it conforms to board policies regarding accessibility of school to the youngsters?

b) Do high school youngsters spend two hours or less a day on buses?

4) Is the school plant economical?

a) Is it properly located and spaced with reference to other schools so that schools are neither too close to each other, which is uneconomical, nor too far apart which does not adequately serve all areas?

b) Is each school effectively planned without waste of space and facilities?

c) Is the school easy to keep clean, to heat, and to operate both day and night with a minimum of janitorial service, fuel and repairs?

5) Is the school plant attractive?

a) Is it the kind of building that will make children feel comfortable, happy, and eager to learn?

b) Is it comfortable and attractively decorated?

c) Is the architecture of the building simple, yet tasteful and in general keeping with the neighborhood in which it is located?

d) Is the site attractively landscaped and well maintained?

Strevell and Burke (1959) identify five objectives for surveying the existing plant: (1) inventory of available space usable for specific purposes, (2) structural evaluation, (3) educational values, (4) renovation and modernization, and (5) orderly adjustment to eventual master plan.

## Checklists and Rating Forms

Strevell and Burke (1959) review scales and forms for inspecting the physical plant. The inspection record gives factual evidence to support the evaluation. The person surveying the building should be familiar with locally accepted standards and expert in applying educational principles to features of the physical plant. A checklist of common deficiencies of sub-standard facilities is included in the survey record.

Published school-plant survey guides that might assist in evaluation include: Standards for the Evaluation of Secondary School Buildings (Odell, 1950), Citizens Workbook for Evaluating School Buildings (Landes and Sumption, 1951), and School Plant Rating Forms (Linn and McCormick, 1956).

An objective inspection of the physical plant and its environs will produce some factual information. The recorded data have to be correlated with other phases of the evaluation of occupational facilities before recommendations are made.

## Evaluative Criteria

Accreditation organizations, state departments of education, and the American Vocational Association (AVA) have

included facility evaluation in evaluative criteria for occupational education.

Evaluative Criteria for Vocational-Technical Programs (Reynolds, et al., 1967) includes procedures used by the Pennsylvania Department of Public Instruction. Criteria are included for the school plant as well as for classroom and laboratory facilities for each occupational program. Each general standard or practice for good physical facilities is rated excellent, average or in need of improvement.

The National Study for Accreditation of Vocational-Technical Education (Ash, 1972) conducted by the American Vocational Association includes facility evaluative criteria. Each instrument is divided into three logical parts:

1) Distinguishing Characteristics--an itemization of characteristics synthesized from a variety of sources, stating the characteristics that distinguish vocational and technical education within the community.

2) Objectives--what they are and how well they are stated and used; how suitable they are for the clientele; and how well they are achieved.

3) Structure and Means for establishing and achieving objectives; the organization, framework, resources, and processes needed to plan, conduct, and evaluate quality vocational-technical education.

The Southern Association of Colleges and Schools was the first regional accrediting agency to form a Committee on Occupational Education and develop separate evaluative criteria and evaluative procedures for vocational and technical education. The committee is now the Commission on Occupational Education. Facilities are an essential and integral part of the total system evaluation. The process includes both self evaluation by school and community, and evaluation by a team of outside experts on the school site. The instruments attempt to present some indicators of success that have been pointed out regarding vocational and technical education.

## Space Utilization

The earlier discussion of space utilization for facilities revolved around the need for additional school buildings. Space utilization of facilities is concerned with efficient use of the existing facility. The same survey techniques, problems of under utilization, and unique aspects of occupational programs applies to ongoing evaluation of the utilization of existing facilities.

Good management would indicate the need for an ongoing record of facility utilization. This might include a per pupil, per hour, per credit use of rooms as well as a record of the frequency of use of media and audio visual equipment.

A record of student use of the specialized machinery and equipment essential to quality occupational instruction would indicate priority needs and prove useful when requesting new or replacement equipment.

## Educational Specifications

The recognized method of evaluating the congruence of instructional goals and school facilities is the use of written educational specifications. However, it is more common to use educational specifications when planning a new building and to forget their utility when evaluating existing facilities.

Guidelines for occupational facilities that gather information for writing educational specifications were prepared by Meckley, et al. (1969). Examples of educational specifications that would be helpful to one preparing new guidelines include those of the North Carolina State Board of Education (1968). The American Vocational Association has also developed guidelines for uniting educational specifications for vocational, technical, and practical arts programs.

# LEGAL AND SAFETY CONSIDERATIONS

School facilities are required to meet minimum codes for comfort and safety. As regulations differ by locality, the

evaluator should become aware of specifics that apply in the situation at hand. State governments, state industrial safety personnel, local fire personnel, and state departments of education may each have regulations that apply. Most state departments of education will have a compilation of state regulations and of agencies that enforce them. Their assistance will be needed by the local evaluator.

### Accessibility to the Handicapped and Disadvantaged

Increasingly, state legislatures are passing laws that require new buildings to be constructed to provide accessibility to the handicapped. The regulations may require ramps for wheelchairs, wider doors, special restroom facilities, and elevators to upper floors (Michigan Department of Education, 1970). With federal vocational legislation encouraging vocational education to serve the handicapped and disadvantaged, an evaluation of existing facilities should include a look at accessibility.

Location of the school plant may be critical to programming for the disadvantaged. Transportation has proved to be a real barrier to enrollment and attendance of the disadvantaged. The lower income individual is more likely to depend on bus transportation and less likely to understand bus schedules and transfers. The best designed facility is of no use to clients that cannot or will not travel to the facility.

## EXTENDING THE FACILITY

The community contains resources that can extend the usefulness of occupational facilities. Traditionally, various kinds of cooperative and on-the-job training programs have conducted skill training in the community. In some communities, business and industrial facilities have been made available to the school after hours.

Community resources, although a welcome extension of the school, should be evaluated on the same criteria as other school facilities.

## SOURCES OF ASSISTANCE

Much of the information needed to evaluate occupational facilities is technical and/or specialized. Sources of assistance include:

1) State Department of Education: Specialists in occupational education, specialists in educational facilities, compilations of regulations.

2) Consultants: Specialists in planning and evaluating educational facilities.

3) Technical consultants: Architects, engineers, safety specialists, and fire marshalls.

4) American Vocational Association (AVA).

5) Facility research groups, including the Council of Educational Facility Planners.

## SUMMARY

The evaluation of facilities for occupational education, or any other educational facility, may be summarized with these guiding principles:

1) The purpose of all elements of a school plant is to facilitate the desired school program.

2) Any study of school facility needs should be an impartial overview of the needs of the school district; no geographical area can be overlooked.

3) Facilities should provide for and be fair to all population elements.

4) The first obligation of a survey of needs is to suggest the best possible utilization of all existing facilities.

5) Any immediate need must be seen in terms of the long range plan.

6) Recommendations must be financially realistic.

7) Conclusions should not over reach the data.

8) The report should be written in a form that makes it easy to review and revise (Boles, 1965).

The value of a school facility is dictated by the educational program. To the individual trying to find suitable housing for an innovative program, this statement may seem mythical. However, curriculum and methods of instruction will always be more flexible than the facility.

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